



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,487	07/07/2005	Takahito Fukuda	HOK-0250	6127
74384	7590	11/12/2009	EXAMINER	
Cheng Law Group, PLLC			BRAY, STEPHEN A	
1100 17th Street, N.W.			ART UNIT	PAPER NUMBER
Suite 503			2629	
Washington, DC 20036				
MAIL DATE		DELIVERY MODE		
11/12/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/517,487	Applicant(s) FUKUDA, TAKAHITO
	Examiner STEPHEN A. BRAY	Art Unit 2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 03 August 2009.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-13 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-13 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____

5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

In an amendment dated, 8/03/2009, the Applicant amended claim 1; and added claims 12-13. Currently claims 1-13 are pending.

Claim Objections

1. Claim 1 is objected to because of the following informalities:
Lines 3-4 of Claim 1 disclose the phrase "virtual images each of which...". The Examiner suggests amending the phrase to read "virtual images, each of which..."
Line 6 of Claim 1 discloses the phrase "front of operator's eyes.". The Examiner suggests amending the phrase to read "front of an operator's eyes,".

Line 11 of Claim 1 discloses the phrase "in order of each of operation steps...". The Examiner suggests amending the phrase to read "in order of a sequence of operation steps...".

Appropriate correction is required.

Response to Arguments

2. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 5-6, 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Meisner et al (US 6,625,299).

Regarding claim 1, *Meisner et al* discloses an operation guiding system comprising:

a virtual image memory configured to store virtual images each of which comprises a virtual operation object (Figure 1 and Column 8, lines 28-44 disclose having a memory 20 which has a software program 56 which retrieves virtual images which are to be integrated with the real images in the field of view of the user.);

a display unit having a see-through head mounted display positioned in front of operator's eyes, the display unit being configured so that the operator can see through the see-through head mounted display to directly see a real object itself and can also see a virtual image replayed with the see-through head mounted display (Column 7, lines 47-67 disclose having a head-mounted display 36 which has an Optical See Through display where the virtual object information is presented onto the display and the user looks through the display to see the real world object. Figure 6 and Column 8, lines 45-57 disclose that a virtual wire 42 is displayed on the Optical See Through display 36 while the real wire 44 is seen through the display 36.);

a virtual image replay means configured to replay the virtual images on said display unit in order of each of operation steps (Column 9, lines 13-35 disclose having menu selections for showing a previous wire that was worked on, showing the wire that

is currently being worked on, showing the next wire to be worked on, and restarting the wire harness assembly program.); and

a virtual image adjusting means configured to adjust the virtual images such that a virtual operation object in a virtual image replayed with the display unit will have an overlapping relation with the corresponding real operation object itself which the operator can directly see through the see-through head mounted display (Column 8, lines 45-57 disclose displaying a virtual wire 42 on top of a wiring board 14.).

Regarding claim 5, *Meisner et al* discloses the operation guiding system as set forth in claim 1, wherein said virtual image replay means memorizes a correspondence between each of the virtual images and each of the operation steps and has a function that calls up one of the virtual images corresponding to one of the operation steps specified by the operator (Column 9, lines 13-35 of *Meisner et al* disclose that the operator can issue commands to have head-mounted display 36 display a previous wire that was worked on, the wire currently being worked on, and a wire that is to be worked on next.).

Regarding claim 6, *Meisner et al* discloses the operation guiding system as set forth in claim 1, wherein said virtual image replay means memorizes a correspondence between each of the virtual images and each of the operation steps, said virtual image replay means having a function that replays the virtual images corresponding to the operation steps within a range specified by the operator and returns to a first virtual image in the range after a replay of the virtual images (Column 9, lines 13-35 of *Meisner et al* disclose that the operator can issue commands to have head-mounted display 36

display a previous wire that was worked on, a wire that is to be worked on next, and also to restart a wire harness assembly procedure from the beginning.).

Regarding claim 9, *Meisner et al* discloses the operation guiding system as set forth in claim 1, further including

an image pickup means configured to take an image of the real operation object (Figure 1 of *Meisner et al* discloses having a camera 26 which takes images of the wiring board 14.) and

a feature point extraction means configured to extract a feature point decided in advance with respect to the operation object, from the image taken by said image pickup means (Column 7, lines 4-25 and Column 8, lines 11-35 of *Meisner et al* disclose having a tracker application software program 56 which tracks a pattern of fiducials 12 detected by a camera 26, and determines a position and an orientation of the operator with respect to wiring board 14.);

said virtual image adjusting means changing a position and/or a dimension of each of the virtual images displayed on said display unit automatically such that a point of the virtual operation object which corresponds to the feature point extracted by said feature point extraction means will conform to the position of the feature point (Figure 6 and Column 8, lines 45-62 of *Meisner et al* disclose displaying a virtual wire 42 upon wire board 14 to designate a desired placement location for a real wire 44.).

Regarding claim 10, *Meisner et al* discloses the operation guiding system as set forth in claim 1, wherein said virtual image adjusting means includes a manual controller by which the operator can manually change a position and/or a dimension of each of the

Art Unit: 2629

virtual images displayed on said display unit (Column 9, lines 13-35 of *Meisner et al* disclose that the operator can issue commands to control the virtual images that are displayed on the head-mounted display 36.).

Regarding claim 11, *Meisner et al* discloses the operation guiding system as set forth in claim 10, further including a head tracking means configured to track a motion of the operator's head (Figure 1 and Column 7, lines 3-46 of *Meisner et al* disclose tracking an orientation and position of the user 24 with respect to the wiring board 14 using a sensor 26 attached to a headset 38.);

said virtual image adjusting means correcting the position of each of the virtual images displayed on said display unit based on an output of said head tracking means (Figure 1 and Column 7, lines 3-46 and Column 8, lines 11-45 of *Meisner et al* disclose adjusting the augmented image displayed to the user according to the position and orientation of the headset 38, which contains a head-mounted display 36 and a camera 26.).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meisner et al (US 6,625,299) in view of Jahn et al (US 2002/0089544).

Regarding claim 2, *Meisner et al* discloses the operation guiding system as set forth in claim 1.

Meisner et al fails to teach wherein each of the virtual images includes a line drawing outlining the real operation object and a visual information mark for explaining the content of each of the operation steps visually.

Jahn et al discloses wherein each of the virtual images includes a line drawing outlining the real operation object and a visual information mark for explaining the content of each of the operation steps visually (Figure 3 of *Jahn et al* discloses that virtual images 14 are shown which give information about a portion of the operation object.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the head-mounted display taught by *Meisner et al* with teachings of *Jahn et al* in order to provide the user of the head-mounted display with virtual images that describe what the user is looking at.

Regarding claim 3, *Meisner et al* as modified above discloses the operation guiding system as set forth in claim 2, further including a visual information mark input means which calls up one of the virtual images from said virtual image memory to modify and/or add the visual information mark (Figure 3 of *Jahn et al* discloses that virtual images 14 are shown which give information about a portion of the operation object.).

Regarding claim 4, *Meisner et al* as modified above the operation guiding system as set forth in claim 3, wherein each of the virtual images comprises a layer on

which the line drawing is drawn and a layer on which the visual information mark is drawn (Figure 3 of *Jahn et al* discloses that virtual images 14 are shown with a line showing which part of the operation object they correspond to.).

7. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Meisner et al* (US 6,625,299) in view of *Casby et al* (US 6,085,428).

Regarding claim 7, *Meisner et al* discloses the operation guiding system as set forth in claim 1, further including

said virtual image replay means controlling the replay of the virtual images based on the operator's voice (Column 8, lines 63-67 and Column 9, lines 1-12 and lines 13-35 disclose controlling the virtual images being displayed according to a voice recognition system.).

Meisner et al fails to teach a voice input means for inputting an operator's voice and a voice recognition means configured to recognize the voice inputted using said voice input means;

Casby et al discloses a voice input means for inputting an operator's voice and a voice recognition means configured to recognize the voice inputted using said voice input means (Column 5, lines 17-28 disclose that speech module processor 58 receives a voice input and is programmed to allow access to the system based on the voice input.);

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the head-mounted display system of

Meisner et al with the voice control system taught by *Casby et al* in order to provide a hands-free way to control the head-mounted display system.

Regarding claim 8, *Meisner et al* as modified above discloses the operation guiding system as set forth in claim 1, further including

a voice memory configured to store voice data for explaining the content of each of the operation steps and a voice output means configured to output the voice data (Column 4, lines 8-42 of *Casby et al* discloses voice messages stored in memory that are played to the user based through a speaker 12 describing an operation being performed.);

said virtual image replay means outputting the voice data to said voice output means in synchronization with a replay of the virtual images (Column 3, lines 18-21 and Column 4, lines 8-42 of *Casby et al* disclose that visual information is provided to the technician in combination with the voice data being provided to the technician.).

8. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Meisner et al* (US 6,625,299) in view of *Tanijiri et al* (US 2001/0038361).

Regarding claim 12, *Meisner et al* discloses the operation guiding system as set forth in claim 1.

Meisner et al fails to teach wherein the see-through head mounted display comprises a pair of translucent liquid crystal panels.

Tanijiri et al discloses wherein the see-through head mounted display comprises a pair of translucent liquid crystal panels (Figures 6 discloses a see-through image

display apparatus with display units 10R and 10L. Figure 2 and Paragraphs [0034] – [0036] disclose that each of the display units 10 contains a transmission-type LCD panel 11, which is translucent.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made that the image display apparatus taught by *Tanijiri et al* could be substituted for the optical see-through head-mounted display device taught by *Casby et al* and provide the user with a headset containing an optical see-through head-mounted display.

Regarding claim 13, *Meissner et al* as modified above discloses the operation guiding system as set forth in claim 1, wherein the see-through head mounted display comprises a pair of prisms each of which has a reflecting surface and a half mirror, and a pair of liquid crystal panels of which virtual image enters each prism from one side thereof (Figures 2 and 6 disclose a see-through image display apparatus with display units 10 which have LCD panels 11 which send an image to one end a prism, which has a reflecting surface 13 and a hologram element 22, which acts as a half mirror.),

wherein the reflecting surfaces reflect the virtual image from the liquid crystal panels forward (Figure 2 discloses that surface 13 of the prism reflects the image received from the LCD panel 11 forward.),

wherein the half mirrors reflect the virtual image backward so that the operator can see the virtual image (Figure 2 discloses that hologram element 22 of the prism reflects the image received from the LCD panel 11 towards the user's eye.).

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN A. BRAY whose telephone number is (571)270-7124. The examiner can normally be reached on Monday - Friday, 9:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AMR AWAD can be reached on (571)272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2629

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEPHEN A BRAY/
Examiner, Art Unit 2629

/Amr Awad/
Supervisory Patent Examiner, Art Unit 2629

7 November 2009